



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/575,125	04/07/2006	Andreas Neyer	NEYER ET AL-1 PCT	9253
25889	7590	01/24/2008	EXAMINER	
COLLARD & ROE, P.C. 1077 NORTHERN BOULEVARD ROSLYN, NY 11576			PETKOVSEK, DANIEL	
			ART UNIT	PAPER NUMBER
			2874	
			MAIL DATE	DELIVERY MODE
			01/24/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/575,125

Applicant(s)

NEYER ET AL.

Examiner

1/16/08
Daniel J. Petkovsek

Art Unit

2874

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on pre-amendment filed April 7, 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-33 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on April 7, 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 6/12/06; 5/26/06.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

This office action is in response to the pre-amendment to the claims filed April 7, 2006. Claims 1-33 have been amended in accordance with the pre-amendment, and claims 1-33 are pending.

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

2. The prior art documents submitted by Applicant in the Information Disclosure Statements filed on June 12, 2006 and May 26, 2006, have been considered and made of record (note attached copy of forms PTO-1449).

Claim Objections

3. Claims 1-33 are objected to because of the following informalities: Regarding claims 1-33, all **reference numbers** (from the drawings) must be removed from the claim language. Regarding, in particular, claims 14, 19, 23, 27, and 28, the claim amendments filed April 7, 2006 have presented some antecedent basis problems with the word "the", which now should be replaced with "a" or eliminated entirely. Since dependencies have changed, some of these claims are no longer dependent upon claims that they had prior. Appropriate correction is required.

4. It is also noted that claim limitations such as "can be" (see, e.g. claims 21 and 22) are not positive claim limitations. Applicant is advised to revise each claim to ensure that the claims are positively reciting each limitation as desired.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 1-33 are rejected under 35 U.S.C. § 112, second paragraph as being indefinite. Claims 2-33 depend directly from sole independent claim 1. A broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. See MPEP § 2173.05(c). Note the explanation given by the Board of Patent Appeals and Interferences in *Ex parte Wu*, 10 USPQ2d 2031, 2033 (Bd. Pat. App. & Inter. 1989), as to where broad language is followed by "such as" and then narrow language. The Board stated that this can render a claim indefinite by raising a question or doubt as to whether the feature introduced by such language is (a) merely exemplary of the remainder of the claim, and therefore not required, or (b) a required feature of the claims. Note also, for example, the decisions of *Ex parte Steigewald*, 131 USPQ 74 (Bd. App. 1961); *Ex parte Hall*, 83 USPQ 38 (Bd. App. 1948); and *Ex parte Hasche*, 86 USPQ 481 (Bd. App. 1949). In the present instance, claim 1 recites the broad recitation "with optically conductive elements", and the claim also recites "particularly with waveguides" which is the narrower statement of the range/limitation.

Art Unit: 2874

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35

U.S.C. 102 that form the basis for the rejections under this section made in this

Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8. Claims 29-33 are rejected under 35 U.S.C. 102(b) as being anticipated by Kaneko et al. U.S.P. No. 6,088,492.

Kaneko et al. U.S.P. No. 6,088,492 teaches an electro-optical printed circuit board according to the method limitations of claim 1. See the description of each structural element in the 35 U.S.C. 103(a) rejections below. Regarding claims 30-33, each structural element is present in the apparatus of Kaneko et al. '492.

"Even though product-by-process claims are limited by and defined by the process, determination of **patentability is based on the product itself**. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art (see Kaneko '492 PCB), the claim is unpatentable even though the prior product was made by a different process." In re Thorpe, 777 F.2d 695, 698, (Fed. Cir.1985).

Art Unit: 2874

9. Claims 1-33 are rejected under 35 U.S.C. 102(b/e) as being anticipated by Kopetz et al. NPL.

Kopetz et al. NPL teaches (ABS, Figs. 1, 2, 4, entire document) a method for the production of an electro-optical printed circuit board, having a number of layers with electrically conductive elements, and at least one optical layer with optically conductive elements (waveguides) wherein the at least one optical layer has a polysiloxane material, and that structuring of the elements of the optical layer takes place by casting the waveguide structures into a mold (negative), in which the mechanical connection between the optical layer and the at least one layer of the electrically conductive printed circuit board layers is produced in direct connection with the production of the optical layer, which clearly, fully meets Applicant's claimed limitations of method claims 1-29. It is noted that hot embossing, as disclosed by the Kopetz et al. NPL reference still meets the *claimed* limitations, in that waveguide structures are "cast" into a negative "mold" to structure the optical layer.

Regarding claims 29-33, the use of such electro-optical PCB is disclosed.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 2874

11. Claims 1-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kaneko et al. U.S.P. No. 6,088,492, and further in view of Ouchi US 2003/0179979 A1 and De Dobbelaere et al. U.S.P. No. 5,764,820.

Kaneko et al. '492 teaches (ABS, Fig. 3, column 15, line 49 through column 16, line 26) a method for the production of an electro-optical printed circuit board, having a number of layers with electrically conductive elements, and at least one optical layer with optically conductive elements (waveguides) wherein the at least one optical layer has a polysiloxane material, and that structuring of the elements of the optical layer takes place by well known means of fabricating and creating a waveguide layer, in which the mechanical connection between the optical layer and the at least one layer of the electrically conductive printed circuit board layers is produced in direct connection with the production of the optical layer.

Kaneko et al. '492 does not *explicitly* teach that the means for fabricating the optical elements is done using casting into a casting mold that contains the waveguide structure(s) as a negative mold.

Ouchi US 2003/0179979 A1 (ABS; [0015], **[0043]**, **[0053]**) and De Dobbelaere et al. U.S.P. No. 5,764,820 (ABS, **column 4, lines 50-65**) teach forming integrated electro-optical devices containing polysiloxane type materials for the optical layer(s). Ouchi '979 and De Dobbelaere et al. '820 also teach that the formation of polymer waveguide layers, such as polysiloxanes, can be done by a number of manufacturing processes, such as by molding and injection molding. The prior art of record teaches that formation of a polymer waveguide

layer by a casting mold that contains the waveguide as a mold (negative) would have been known to one having ordinary skill in the art at the time the invention was made.

Since Kaneko et al. '492, Ouchi '979, and De Dobbelaere et al. '820 are both from the same field of endeavor, the purpose disclosed by Ouchi '979 and De Dobbelaere et al. '820 would have been recognized in the pertinent art of Kaneko et al. '492.

A person having ordinary skill in the art at the time the invention was made would have recognized the teaching of Ouchi '979 and De Dobbelaere et al. '820, to form the waveguide layer by the process of using casting into casting mold that contains the waveguide structure in a negative mold, for the purpose of improving optical coupling in the eventual electro-optical printed circuit board, in that the polysiloxane waveguide layer can be made in a more efficient and repeatable manner. This type of manufacture allows for exact replicas, and since the entire mold would be bigger in size, it would decrease cost of making the final PCB product. This teaching would have been recognized in the pertinent prior art of Kaneko et al. '492 to improve optical coupling efficiency and decrease manufacturing cost.

Regarding further dependent method claims 2-28, see Kaneko et al. '492, Ouchi '979, and De Dobbelaere et al. '820.

Regarding claims 29-33, the use of such electro-optical PCB is disclosed. These product-by-process claims need only have the structural limitations, as any specific method limitation is not needed to meet these types of claims.


Conclusion


12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: PTO-892 form references A-C.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel J. Petkovsek whose telephone number is (571) 272-4174. The examiner can normally be reached on M-F 8:30-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney Bovernick can be reached on (571) 272-2344. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Daniel Petkovsek
January 16, 2008


SUNG PAK
PRIMARY EXAMINER